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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/732,468	12/07/2000	Christopher Mark Bowles	TI-24521	3187

23494 7590 12/19/2002

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EXAMINER

PEREZ RAMOS, VANESSA

ART UNIT	PAPER NUMBER
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1765

DATE MAILED: 12/19/2002

11

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/732,468	BOWLES ET AL.	
	Examiner	Art Unit	
	Vanessa Perez-Ramos	1765	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 October 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-11 and 13-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-11 and 13-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. Claims 1 and 13 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The newly added limitation "substantially conforming to the substrate surface contour" is not described in the specification.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-11 and 13-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lin (U.S. 6,057,207) in view of Ye et al. (U.S. 5,756,400).

In regard to claims 1-10 and 13-19, Lin discloses a method for forming a shallow trench isolation (col. 2, line 25) comprising: forming a plurality of isolation trenches in substrate, the trenches separating active areas (col. 2, lines 44-51); forming an insulating layer over the substrate, the insulating layer being silicon oxide (col. 2, line 53) ; filling the trenches and

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covering the active areas (col. 2, lines 52-55), which inherently reads on Applicant's "and substantially conforming to the substrate surface contour"; forming a conformal barrier layer, which reads on Applicant's "planarization layer" on the insulating layer (col. 2, lines 57-61); removing the planarization layer and insulating layer (col. 2, lines 62-67 and col. 3, lines 1-8) down to a stop layer for the active areas (col. 7, lines 44-45). Furthermore, Lin discloses that the step of removing the planarization and insulation layers further comprise etching at a certain rate through the planarization layer and the insulation layer down to a certain depth, which reads on Applicant's "down to a CMP depth outward from the active areas" (col. 2, lines 62-67, col. 3, lines 1-2 and col. 6, lines 52-54) and then chemical mechanical polishing from there to the stop layer (col. 3, lines 3-8), said etch stop layer comprising silicon nitride (col. 7, lines 47-48) and being later removed (col. 7, lines 46-47).

Lin does not disclose the rates at which the etching through the insulating and planarizing layers is done.

Ye discloses an etching process for semiconductor manufacturing, and teaches that the variation of process parameters, such as etching rates, is a common step that assists in determining the optimal process conditions that yield optimal etching results (col. 7, lines 35-40).

It is the Examiner's position that it would have been obvious to one skilled in the art at the time of the invention to modify Lin by varying the etching rates, because this step would help ensure that optimal conditions are determined, and that optimal etching results are obtained, which is critical during semiconductor manufacturing.

In regard to claims 11 and 20, Lin does not disclose a preferred etching depth.

Ye discloses an etching process for semiconductor manufacturing, and teaches that the variation of process parameters is a common step that assists in determining the optimal process conditions that yield optimal etching results (col. 7, lines 35-40).

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It is the Examiner's position that it would have been obvious to one skilled in the art at the time of the invention to modify Lin by varying the etching depth, because this step would help ensure that optimal conditions are determined, and that optimal etching results are obtained, which is critical during semiconductor manufacturing.

Response to Arguments

5. Applicant's arguments with respect to claims 1-11 and 13-20 have been considered but are moot in view of the new ground(s) of rejection.

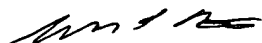
6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Vanessa Perez-Ramos whose telephone number is 703-306-5510. The examiner can normally be reached on Mon-Thurs 7:00am-5:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Benjamin Utech can be reached on 703-308-3836. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9310 for regular communications and 703-872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-306-5665.

Vanessa Perez-Ramos
Examiner
Art Unit 1765

VPR
December 16, 2002


BENJAMIN L. UTECH
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 1700